

Revealing the Past, Interpreting the Present, and Informing the Future

NOAA's National Centers for Environmental Information

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NOAA's National Centers for Environmental Information

NOAA ProTech Industry Day
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NOAA Satellite and Information Service | National Centers for Environmental Information



National Centers for Environmental Information

- Responsible for hosting and providing access to one of the most significant archives on Earth, with comprehensive oceanic, atmospheric, and geophysical data
- From the depths of the ocean to the surface of the sun and from million-year-old sediment records to near real-time satellite images
- Nation's leading authority for environmental information



National Centers for Environmental Information

MISSION

Steward of the Nation's Environmental Information

NCEI is responsible for preserving, monitoring, assessing, and providing public access to the Nation's treasure of environmental data and information. NCEI data and information spans the breadth of weather (atmospheric and space), climate, oceans, geophysical, and coastal disciplines.

VISION

Be the Nation's Trusted Authority on Environmental Data and Information.

NCEI will be the most comprehensive, accessible, and trusted source of state-of-the-art environmental data, information, and monitoring.



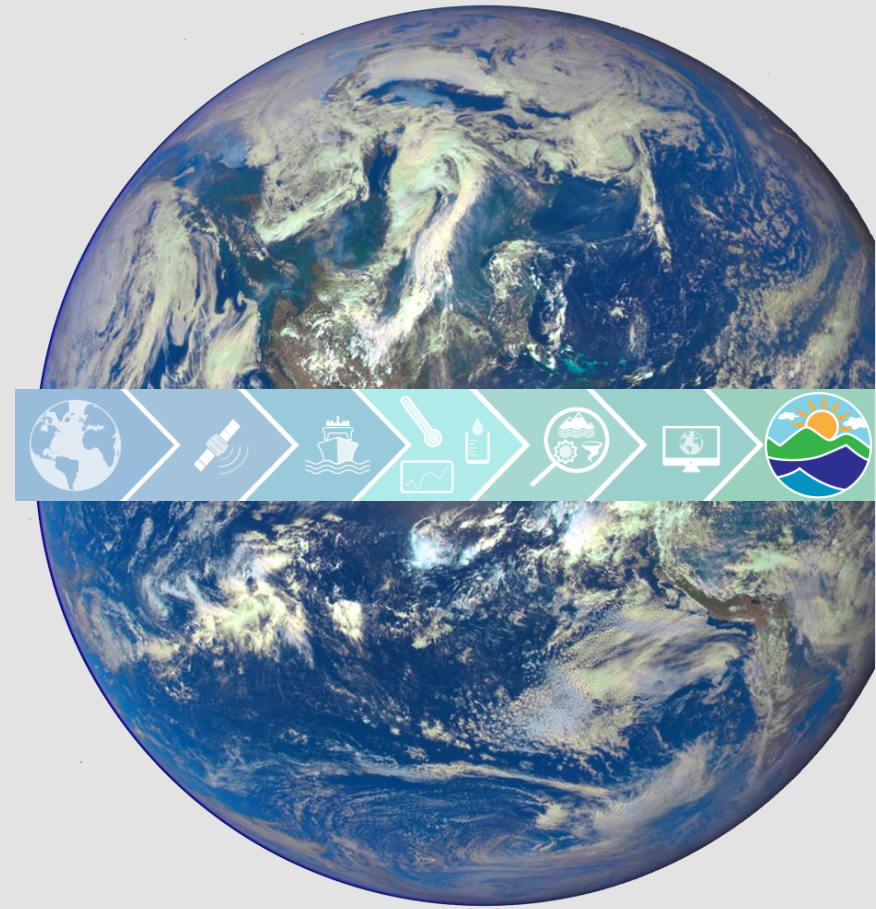
History of NCEI

- **National Climatic Data Center, Asheville, North Carolina**
 - Established in 1951 as the Weather Bureau Records Center
 - Renamed the National Climatic Center in 1970 and the National Climatic Data Center in 1984 to reflect its large collection of weather and climate data
- **National Geophysical Data Center, Boulder, Colorado**
 - Established in 1965 from the Coast and Geodetic Survey and Central Radio Propagation Laboratory
- **National Oceanographic Data Center, Silver Spring, Maryland**
 - Established in 1961 as an interagency facility administered by the U.S. Naval Hydrographic Office
 - Included Coastal Data Development, Stennis Space Center, Mississippi
 - Established in 2000 by NOAA as the coastal division of the National Oceanographic Data Center
- **NCEI approved in the Consolidated and Further Continuing Appropriations Act, 2015, Public Law 113-235**



Merger of NOAA Data Centers

- Part of Strengthening NESDIS
- Enhance integrated teamwork across multiple science disciplines
- Build upon the full spectrum of weather/climatic, oceanographic, coastal, and geophysical products and services that the Data Centers previously delivered
- Provide consistent data management capability for all of NOAA





Merger of NOAA Data Centers

Cross-NCEI Programs

Several NCEI Programs within the previous Centers can now be brought to bare on the full breadth of NCEI's data and information services:

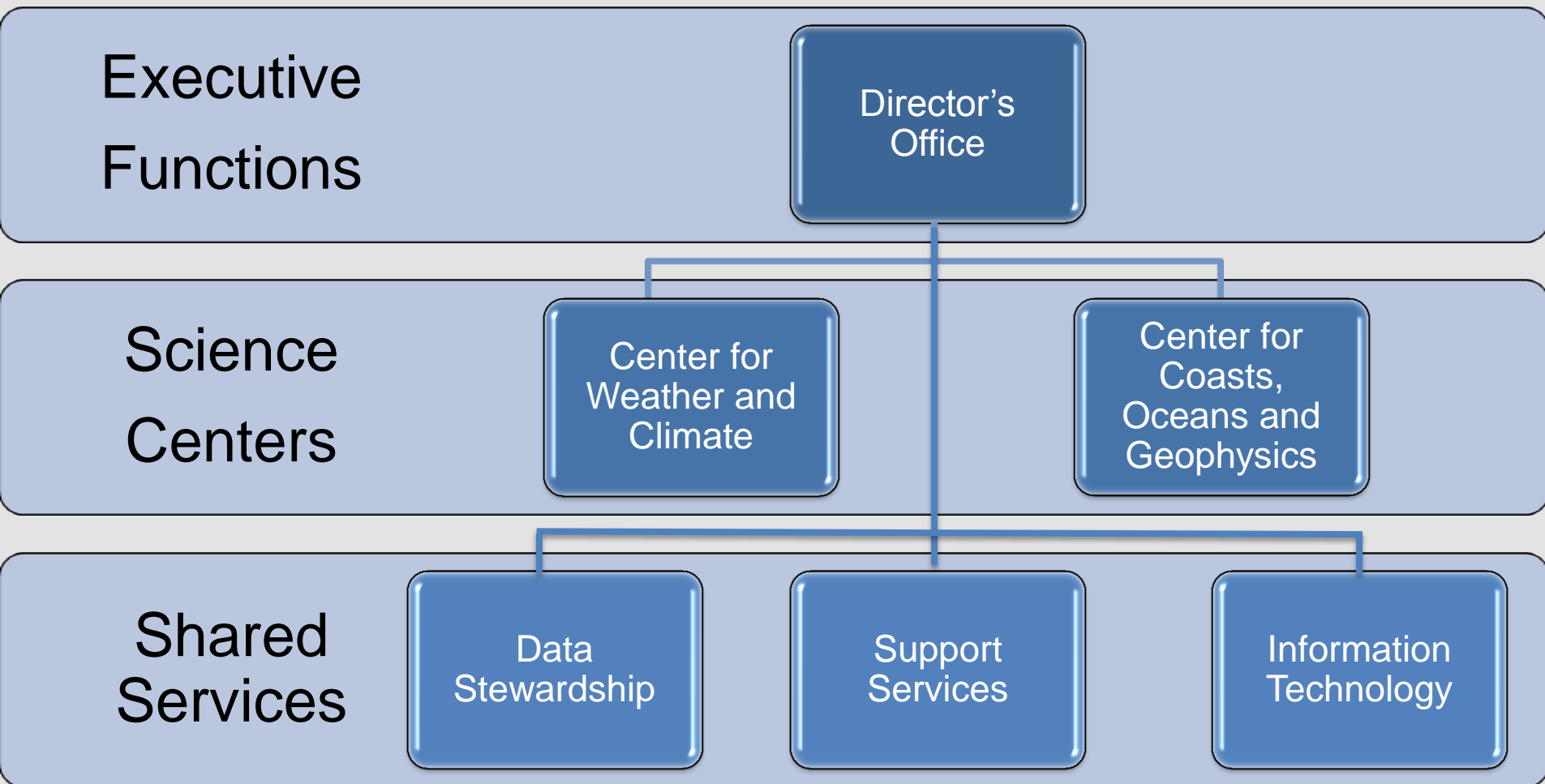
- Regional Climate Services
- Coastal Data and Development
- Reference Environmental Data Records (Climate Data Records)

Leveraging International Standards

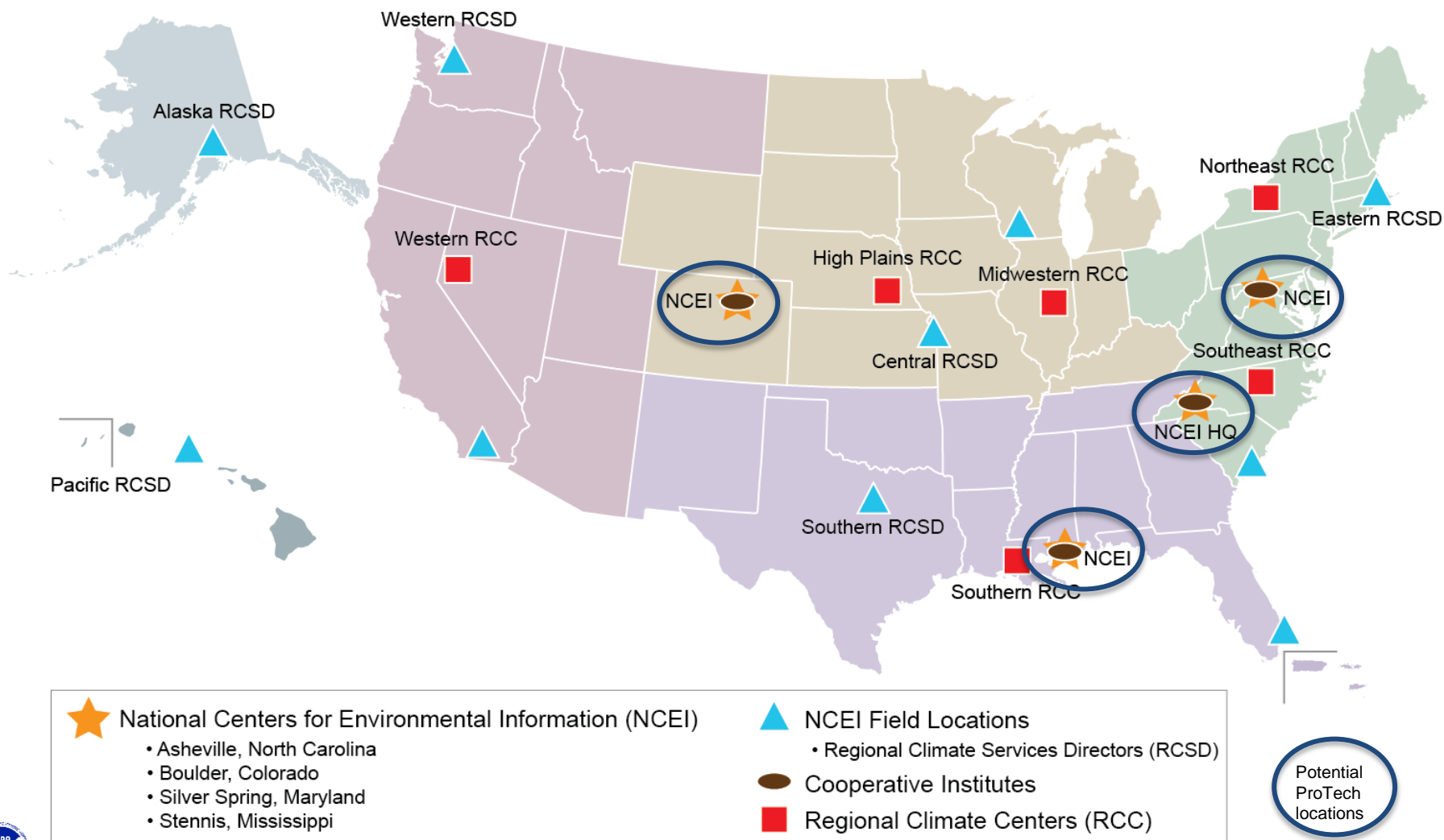
NCEI combines expertise that each Center has in following international standards-based approaches to environmental data management:

- Open Archival Information System (OAIS) Reference Model (ISO 14721)
- Metadata (ISO 19115 Series)

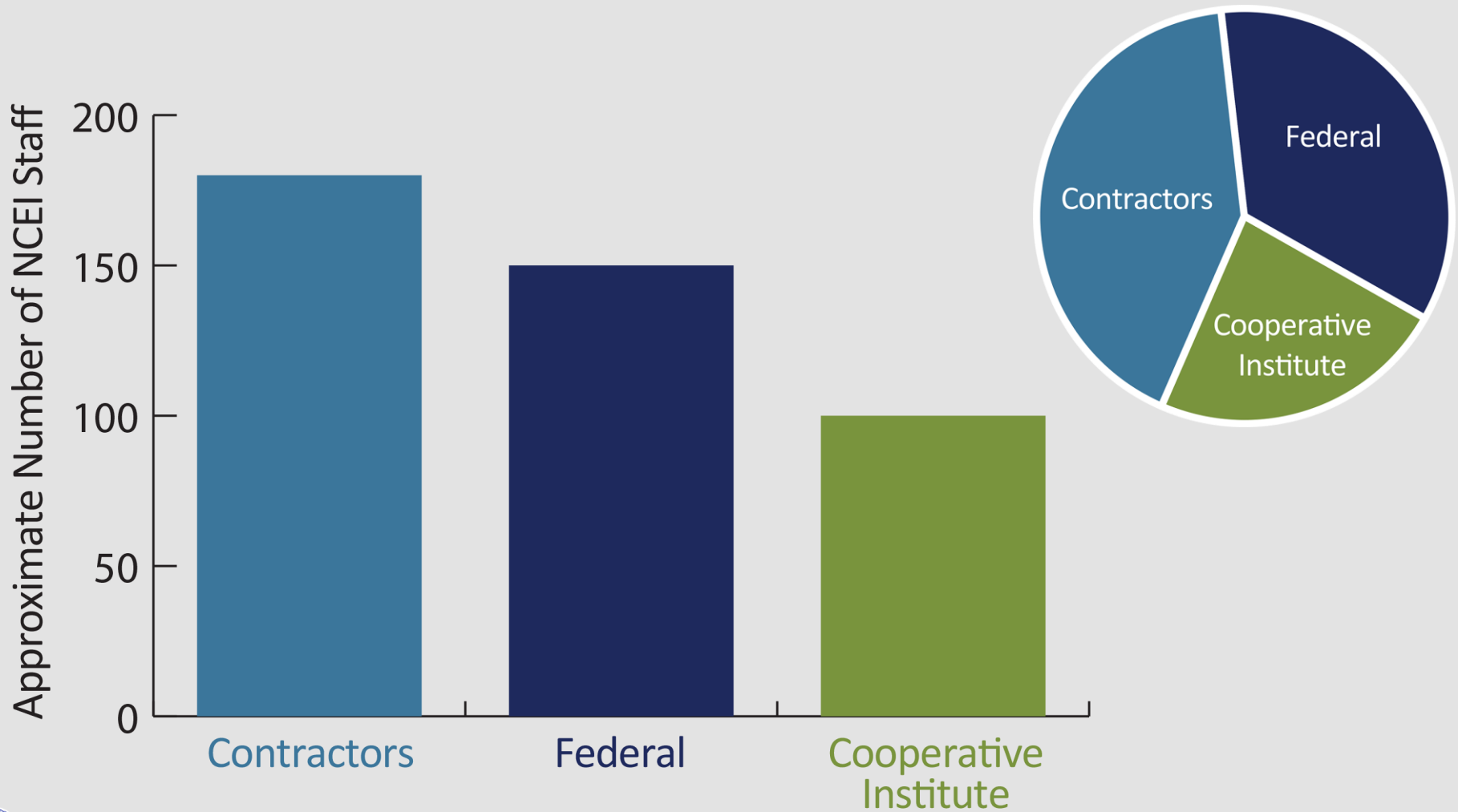
NCEI's Organization



NCEI has a Nationwide Presence



Composition of NCEI Staff





NCEI Contract Areas: Science, Stewardship and Services

- Center for Weather and Climate Support
 - Scientific datasets & products development generation, sustainment, and user services
 - Scientific analysis supporting data and metadata quality consistency and improvement
 - Scientific outreach and engagement promoting NCEI products and services and collecting feedback, including usage info/analytics
 - Develop and sustain applications and databases for environmental information
 - Science-based project and program management
- Center for Coasts, Oceans, and Geophysical Support
 - Scientific datasets & products development generation, sustainment, and user services
 - Scientific analysis supporting data and metadata quality consistency and improvement
 - Scientific outreach and engagement promoting NCEI products and services and collecting feedback
 - Develop and sustain applications and databases for environmental information, including GIS
 - Science-based project and program management



NCEI Contract Areas: Science, Stewardship and Services

- Data Stewardship Division Support
 - Data Access technology, maintenance, and improvements support
 - Software engineering support, including SCM, SQA
 - Operations & maintenance support for science dataflows (ingest, archive, access, and distribution)
 - Archivist support including physical records mgmt., digital conversions, metadata reqts. & verification, etc.
 - Webpages & web portals content management and administration
 - Multi-user scientific database development and sustainment
- Support Services Division/Standards & Evaluation Branch Support
 - Enterprise Configuration Management & (Tech) Document Mgmt including data entry
 - Enterprise Quality Management & Quality Assurance
 - Process Asset Library Admin
 - Process Engineering Group support



NCEI Contract Areas: Science, Stewardship and Services

- Information Technology and Logistics Division Support
 - Technology, processes and procedure support for the interface(s) between scientific code, applications, and operations and IT infrastructure software, platforms, and operations
 - Science mission planning and coordination support to ensure compatibility with IT infrastructure plans and technology change



NCEI Contract Areas (Enterprise Domain): Office and Policy Support

- Office Support

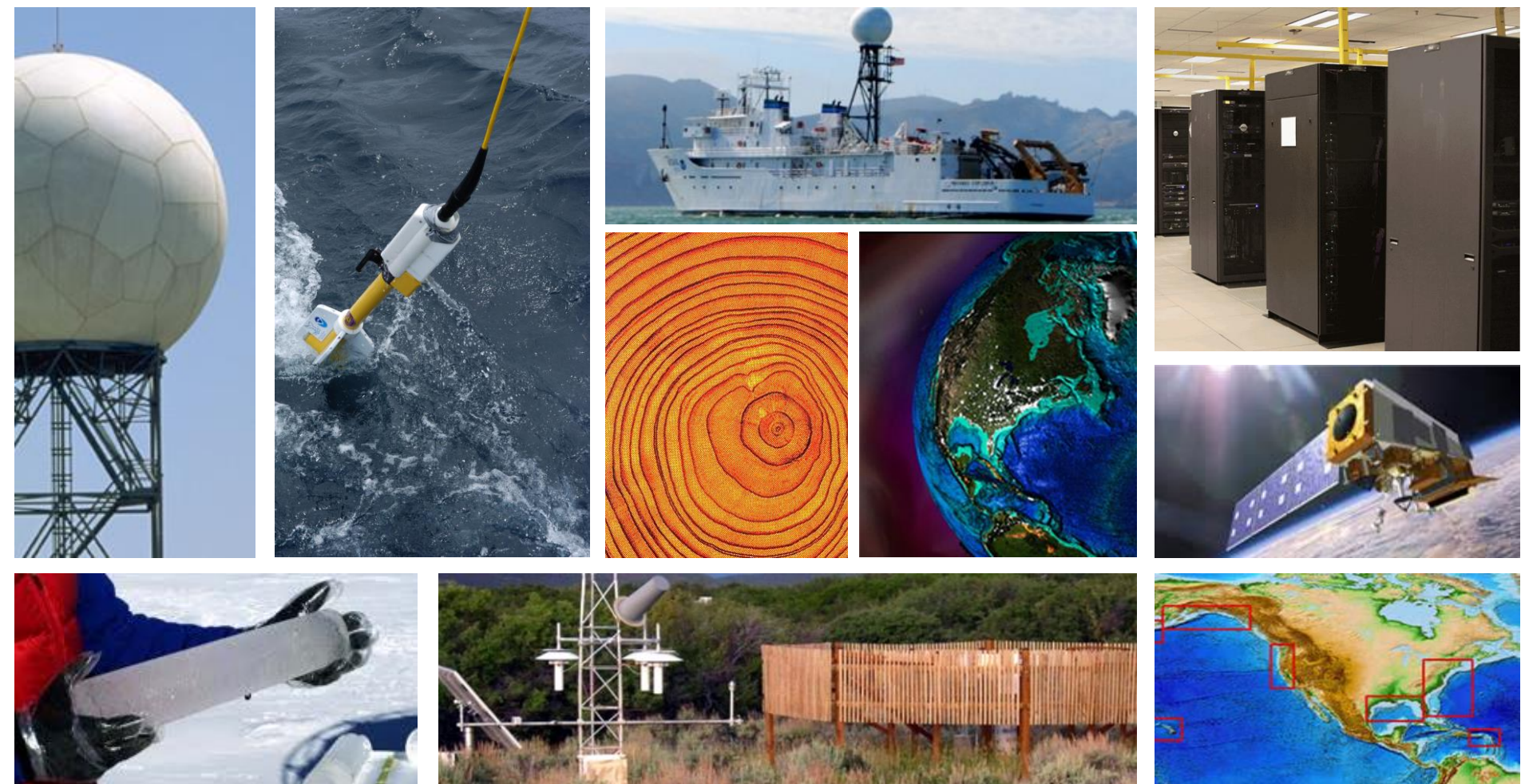
- Administrative
- Communication
- Property
- Budget/Finance
- Acquisition
- Mail Room
- Copy Center
- Logistics

(facilities management, emergency generator refueling & maintenance, fire alarms, electrical usage data, furniture installation/movement, etc.)

- Policy Support

- Analyses and assessments
- Council/Committee Support
- Project Management
- Position paper drafting
- Prioritization suggestions

NCEI Ingests and Archives Environmental Data from U.S. and International Sources



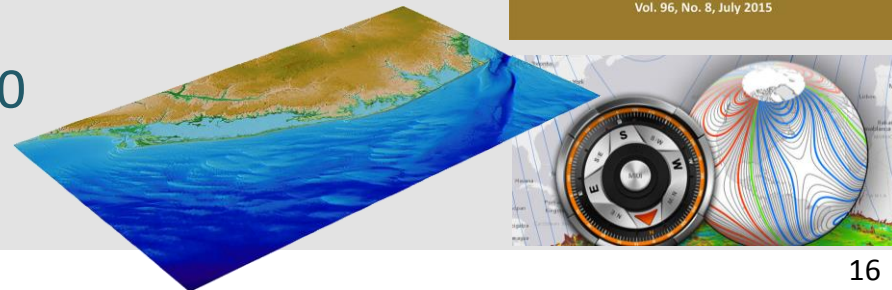
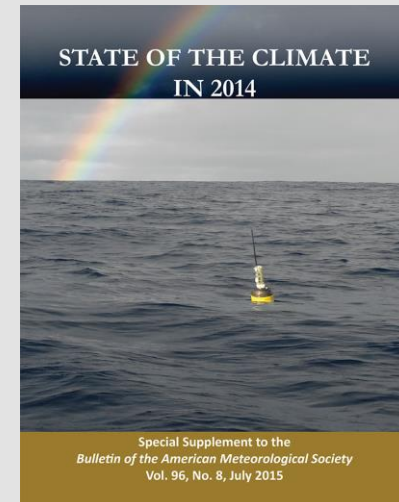
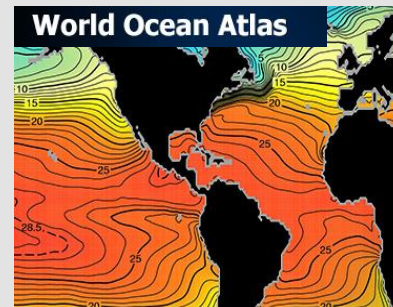
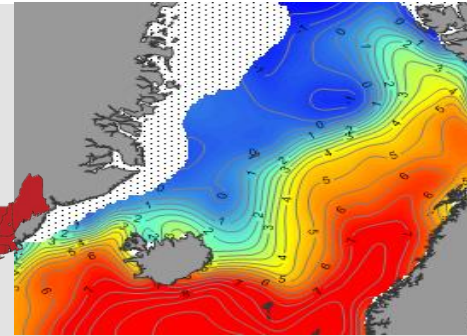
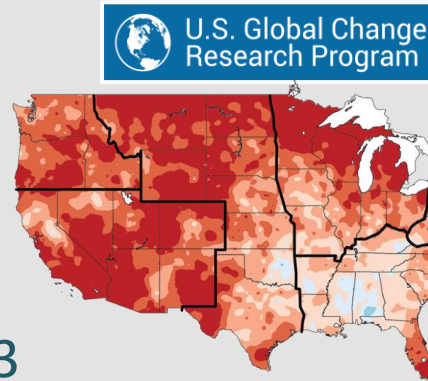
Data spans stone-age to space-age... from the depths of the ocean to the sun ... and across the globe
A designated National Archive, mandated to preserve data for 75 years and beyond

NCEI products span from local to global, and weekly to decadal scales



Examples of NCEI Products

- Climatological Atlas of the Nordic Seas and Northern North Atlantic
- World Ocean Atlas 2013
- National Climate Assessment
- BAMS State of the Climate in 2013
- Explaining Extreme Events of 2013 from a Climate Perspective
- Extended Continental Shelf (ECS) Project
- Post-Sandy Digital Elevation Model
- World Magnetic Model for 2015-2020



Tiers of Stewardship



NCEI is Responding to a Broad Spectrum of Users

Economic Sectors



Water



Energy



Transportation



Academia



NGO



Federal Government



State, Local, Tribal
Government

Regional



South



Central



West



Northeast



Alaska



Pacific Islands

Societal Challenges



Marine



Coastal Resilience



Water Resources



Extremes

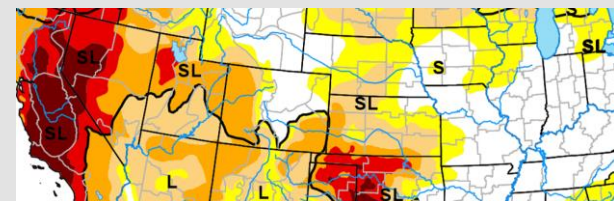
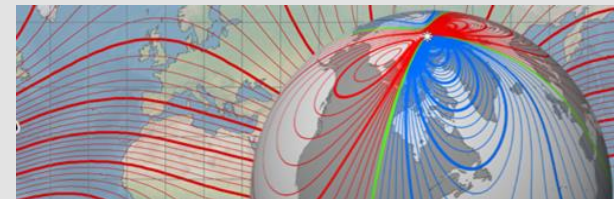
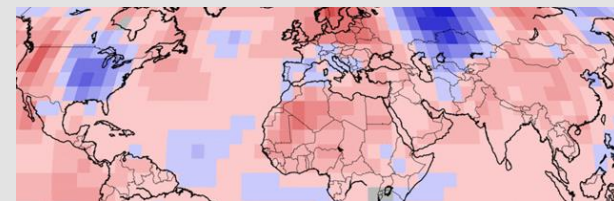
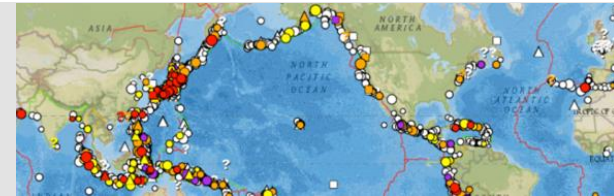


Health

Value of NCEI

Science, Service, Stewardship

- Comprehensive environmental information across economic/environmental sectors and science disciplines for decision making, planning, and operations
- Timely and authoritative data and information with well described origin and certainty
- Service to a wide-range of customers across government, academia and industry
- Preservation of data and information for future generations

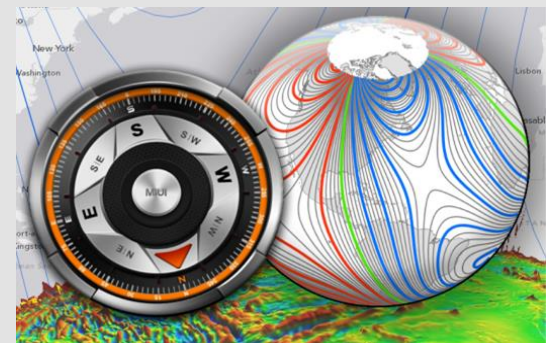
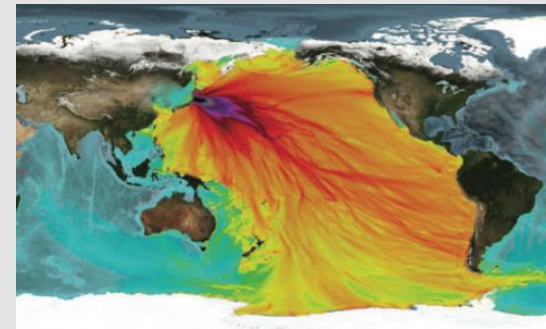
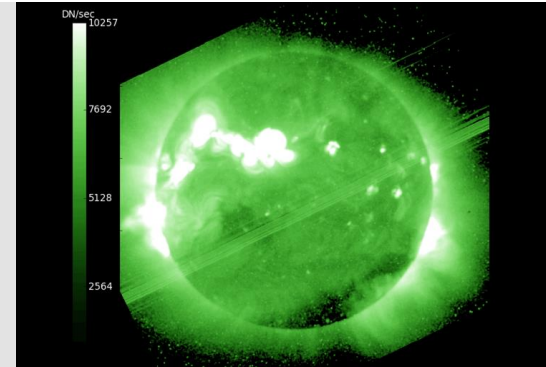




BACK-UPS

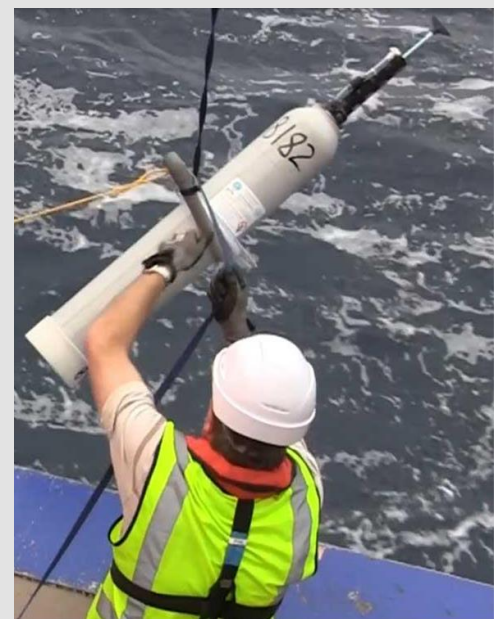
Geophysics

- Nation's geophysical data archive ranging from the surface of the sun to the Earth's seafloor and from the solid earth environment to weather in space
- Data are from satellites, space observations, ships, and models provides information on tsunamis, the U.S. Extended Continental Shelf, coastal Digital Elevation Models, geomagnetism, solar, and terrestrial
- Products and data support safe navigation both in space and on our oceans and coasts including the Arctic and the information needed in tsunami forecasting, sea level rise prediction, and storm surge inundation



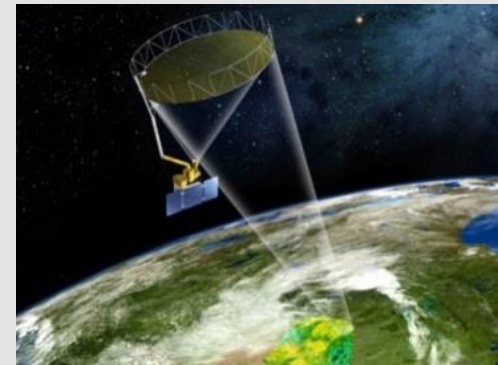
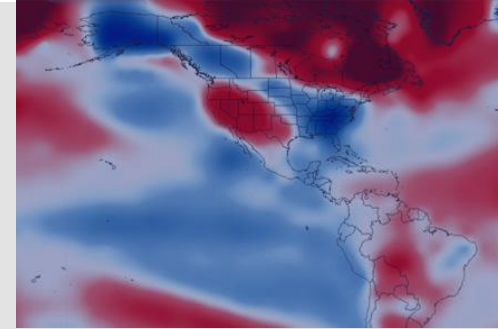
Oceans and Coasts

- World's largest archive of oceanographic and coastal data, ranging from water temperatures dating to the late 1700s to present day ocean salinity, nutrients, waves and currents
- Data are from ocean and coast observations, ships, buoys, satellites, remote sensing, and ocean model simulations
- Products and data are used to answer questions about ocean and coast phenomena, management of coastal and marine resources, natural disasters, and marine transportation



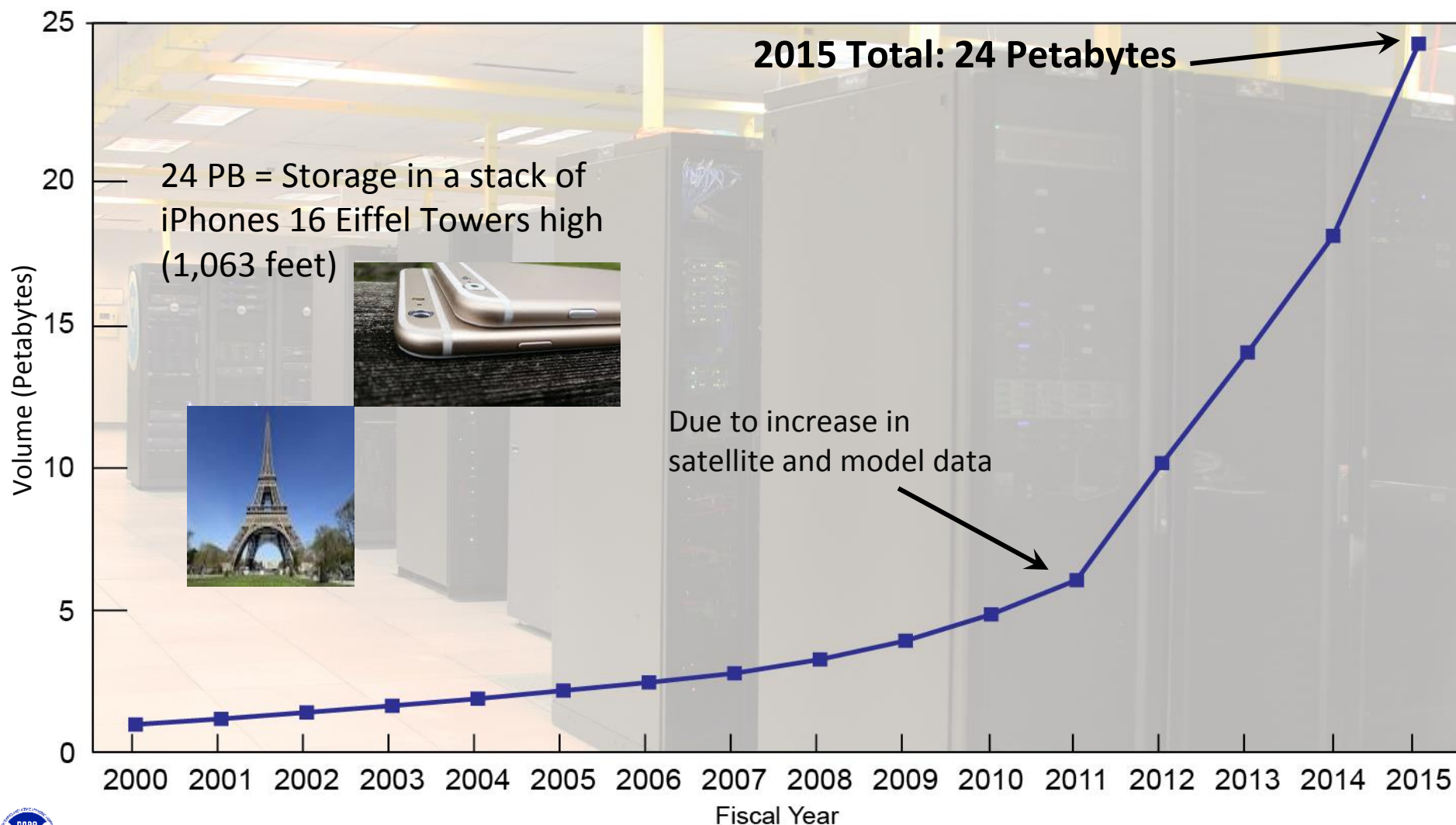
Weather and Climate

- World's largest weather and climate data archive with records ranging from paleoclimatology data to centuries-old journals to data less than an hour old
- Data are from land-based weather and climate stations, ships, buoys, weather balloons, radar, satellites, and comprehensive weather and climate models
- A suite of information products is available to describe the national and global climate and to monitor the state of the weather and climate variations, extremes, and trends



NCEI Environmental Data Archive Volume

Increasing Data Volumes from Station, Model, Radar, and Satellite Sources



NCEI Environmental Data User-Requested Volume

Increasing Data Requests from Station, Model, Radar, and Satellite Sources

